

or greater than 7 grams/denier, wherein said protective sleeve is abrasion-resistant, cut-resistant, and tear-resistant.

31. (Amended) The protective cover of Claim 27 wherein said high performance yarns are formed from polymers selected from the group consisting of long chain polyethylenes, high strength aramids, liquid crystal polymers, and combinations thereof.

32. (Amended) The protective cover of Claim 31 wherein said high performance yarns are about 400 to 1000 denier.

40. (Amended) An abrasion-resistant rope that must be periodically moved or pulled across abrasive services comprising an outer protective layer formed substantially from high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier so that the protective layer is abrasion-resistant, cut-resistant, and tear-resistant.

Remarks

Claims 1-40 stand rejected.

The Examiner believes that reference to the previously filed, copending application is improper. Applicant herein replaces the first paragraph of the specification to include the status (pending) of the previously filed application.

The Examiner asserts that the declaration filed with the application is defective because the date in which the parent case was filed appears to have been altered and does not contain initials. A new declaration is submitted herewith.

The Examiner objects to the drawings because Figures 5a and 5b lack the proper cross-hatching which indicates the type of materials which may be in the invention. Corrected drawings with appropriate changes marked in red are submitted herewith.

The Examiner also objects to the abstract of the disclosure because it contains a run on sentence in lines 3-4. An amended abstract of the disclosure, on a separate paper, is submitted herewith.

The Examiner has rejected Claims 1-26 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner asserts that the phrases "or the

like”, “such as”, and “and/or” render Claims 1 and 14 indefinite. Claims 2-13 and 15-26, which depend upon rejected Claims 1 and 14, are therefore rejected. Claims 1 and 14 are herein amended to overcome the Examiner’s rejections.

Claims 1-13 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of Claims 1-13 of the copending application. Based upon the provisional nature of the rejections, Applicant is not yet required to respond.

Claims 1, 2, 8, 9, 27, 28, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,300,377 to Andrieu et al. Claims 14, 21, 22, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,441,790 to Ratigan. Claims 3-7 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrieu in view of U.S. Patent No. 5,395,682 to Holland et al. Claims 10-12 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrieu in view of U.S. Patent No. 4,891,256 to Kite, III et al. Claims 13 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrieu in view of U.S. Patent No. 5,070,597 to Holt et al.

Applicant’s Invention

Applicant’s invention is directed to a rather simple, yet effective, lightweight, abrasion-resistant, cut-resistant, and tear-resistant protective cover for lengths of material, such as ropes, that are used in environments in which the lengths of materials are subjected to high wear and tear applications. In such environments conventional coverings of such materials as nylon, polyester, polyethylene, and other polymers have been unsatisfactory in that they wear out, are damaged, or are exposed to damaging chemicals. These environments include marine terminals, airports, power lines, and underwater lines and cables. The only known previous attempts have been to make heavier coverings or go to metal and plastic sheathings. The problem, however, remains unsolved.

The present invention solves the problem by adopting for use a lightweight, but very strong, fabric cover constructed of high performance yarns, i.e., those defined in the present application as yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity greater than about 7 grams/denier. Protective covers formed from one of these yarns have a high level of tear-resistance, abrasion-resistance, cut and stab resistance, ultraviolet

radiation resistance, and resistance to chemicals and low temperatures. While fabric formed from these high performance yarns are substantially more expensive, the fabric so formed is only about one-third the weight of polyester, is much more durable, and requires much less frequent replacement.

The Prior Art Is Different

Andrieu et al. is directed to a wraparound closure device that is of relatively low cost (Col. 1, Line 49) and which can be used to bundle a plurality of cables. However, Andrieu et al. is merely exemplary of the covers that represent the problem in the first place. The Andrieu et al. device is not formed of high performance yarns as defined in Applicant's specification and as well known to those of ordinary skill in the textile arts. Rather, the Andrieu et al. device is formed of low cost polyester monofilament and multifilament yarns. While Andrieu et al. mentions, in general terms, abrasion and heat resistance, Andrieu et al. does not describe how or why fabric formed from the disclosed polyester yarns could possibly be deemed abrasion-resistant. Further, Andrieu et al. does not even recognize tearing and cutting of the fabric sleeve as problems to be solved by his wraparound closure. As such, Andrieu et al. neither recognizes nor solves the problem addressed by the present invention.

Ratigan is also directed to a wraparound device that is formed of relatively low cost materials such as nylon, polypropylene, or polyester. Ratigan is not interested in the type of material, but rather a device which binds to the rope by its own means. Thus, Ratigan is attempting to solve an entirely different problem. However, as with Andrieu et al., the Ratigan device is merely exemplary of the covers that represent the problem in the first place. The Ratigan device is also not formed of high performance yarns as defined in Applicant's specification. Further, Ratigan also does not recognize tearing and cutting of the fabric as problems to be solves by his wraparound device.

Holland et al. is directed to a cargo curtain, not a protective sleeve, for covering the open ends, or sides, or cargo containers, luggage trailers, and truck openings. Holland et al. is specifically directed to solving a different problem, i.e., limited life fabric cargo covers that are subject to inadvertent ripping and tearing, such as might be caused by forklift tines.

Kite, III et al. is directed to a wraparound closure device made from inexpensive polyester. The device is formed as a braided fabric which is an axially compressible, radially

expandable elongate tubular member. The Kite, III et al. device is intended for the tight bundling of a plurality of cables to reduce abrasiveness between cables (Col. 1, Lines 25-29). Kite, III et al. does not employ, or suggest, high performance yarns to form an abrasion-resistant, cut-resistant, and tear-resistant protective cover.

Holt et al. is not at all relevant to Applicant's invention; rather, Holt et al. is directed to a double walled tube that can be continuously revolved around an elongate member by relative sliding motion between the two walls of the double walled construction.

Examiner's Rejection of the Claims Under 35 U.S.C. 102 (b) Should Be Withdrawn Because Andrieu et al. Does Not Disclose Each And Every Element of the Claimed Invention

Both the Patent Office and the CAFC (formally the CCPA) have historically required that a single reference teach each and every element of the claim. That requirement is clear and unequivocal. Atlas Powder v. I.E. DuPont, 750 F.2d 1569, 224 USPQ 409 (CAFC 1984) James Bury Corp. v. Litton Industrial Products, 750 F.2d 1556, 225 USPQ 253 (CAFC 1985).

Claim 1, 14, 27, and 40, as amended, require that the protective cover, protective sleeve, or protective layer of the present invention be formed of a fabric made substantially of high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier. For example, such yarns may be formed from polymers such as long chain extended polyethylenes, high strength aramids, liquid crystal polymers, and combinations thereof, or other materials having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier. Andrieu et al.'s wraparound closure device, however, lacks such high performance yarns. Further, Andrieu et al.'s polyester device is neither cut-resistant nor tear-resistant. Lacking these elements, Andrieu et al. cannot properly form the basis for a rejection of Claims 1 and 27 under 35 U.S.C. 102(b). Accordingly, the Examiner's rejections should be withdrawn. Since Claims 2, 8, 9, 28, and 34 depend from amended Claims 1 and 27, the Examiner's rejections of those claims should also be withdrawn. Should the Examiner attempt to combine Holland et al. with Andrieu et al. in a rejection under 35 U.S.C. 103(a), his attention is directed to the argument set forth below as to Claims 3-7 and 29-33.

The same is true of Ratigan's low cost nylon, polyester, or polypropylene device. Ratigan's wraparound device also lacks high performance yarns. As with Andrieu et al., Ratigan's device is also neither cut-resistant nor tear-resistant. Lacking these elements, Ratigan cannot properly form the basis for a rejection under 35 U.S.C. 102(b). Accordingly, the Examiner's rejections of Claims 14 and 40 should be withdrawn. Since Claims 21 and 22 depend from amended Claim 14, the Examiner's rejections of those claims should also be withdrawn. Should the Examiner attempt to combine Holland et al. with Ratigan in a rejection under U.S.C. 103(a), his attention is directed to the argument set forth below as to Claims 15-20.

The Claims Are Not Unpatentable Under 35 U.S.C. 103(a) As the Examiner Has Not Made Out
a Prima Facie Case of Obviousness

It is the burden of the Examiner to establish a prima facie case of obviousness when rejecting claims under 35 U.S.C. 103. In re Reuter, 210 USPQ 249 (CCPA 1981). The CAFC (and the CCPA before it) have repeatedly held that, absent a teaching or suggestion in the primary reference for the need, arbitrary modifying of a primary reference or combining of references is improper. The ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). In re Gieger, 815 F. 2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987).

1. Claims 3-7 and 29-33 are not suggested by Andrieu et al., which is not helped by Holland et al.

The Examiner relies on Andrieu et al. as his primary reference in rejecting Claims 3-7 and 29-33. Andrieu et al. is directed to a wraparound closure device that is of relatively low cost (Col. 1, Line 49) and which can be used to bundle a plurality of cables. The Andrieu et al. device is formed from inexpensive polyester monofilament and multifilament yarns. Andrieu et al. has not even recognized the problem, much less attempted to solve it. The Examiner asserts (and applicant argues) that Holland teaches a protective cover formed of an abrasion-resistant, cut-resistant, and tear-resistant fabric. The Examiner has not, however, explained why one skilled in the art would be motivated to modify Andrieu et al. at all, much less with the expensive fabric of Holland. The mere fact that references can be combined or modified does not render

the resultant combination obvious unless the prior art suggests the desirability of the combination. In re Mills, 16 USPQ2d 1430 (Fed. Cir. 1990). Here, just the opposite is the case. There is not a scintilla of motivation or suggestion that would prompt one of ordinary skill in the art to combine Holland with Andrieu et al. As the Court of Appeals for the Federal Circuit held in Al-Site Corp. v. VSI Int'l Inc., 50 USPQ2d 1161 (Fed. Cir. 1999), the level of ordinary skill in the art cannot be relied upon to provide the suggestion to combine references. Further, when the incentive to combine references is not immediately apparent, the Examiner has the burden and duty to explain why the combination is proper. Ex parte Clapp, 227 USPQ 972 (Bd. Pat. App. & Inter. 1985). The Examiner has not done so; rather the Examiner has pieced together the Andrieu et al. and Holland et al. based on Applicant's specification. As the Federal Circuit has repeatedly stated:

It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

In re Fritch, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992).

Andrieu et al. actually teaches away from Applicant's invention. Specifically, an objective of Andrieu et al. is to provide a low cost device. Polyester makes such a low cost device feasible. While the Examiner believed that there is no substantial difference in costs between polyester and Spectra, Spectra is significantly more expensive. Depending upon the denier, polyester yarn costs between about \$2.50 and \$6.00 a pound. Spectra, on the other hand, costs between about \$25.00 and \$40.00 per pound. To substitute Spectra for the polyester in Andrieu et al.'s device would simply defeat the objectives of the Andrieu et al. wraparound closure.

Additionally, while Andrieu et al. mentions, in general terms, abrasion and heat resistance, Andrieu et al. does not describe how or why fabric formed from the disclosed polyester yarns could possibly be deemed abrasion-resistant. Further, Andrieu et al. does not even recognize tearing and cutting of the fabric sleeve as problems to be solved by the wraparound closure. Simply, polyester is not a high performance, cut-resistant or tear-resistant material.

2. Claims 10-12 and 36-38 are not suggested by Andrieu et al. in view of (Holland et al. and) Kite, III et al.

The Examiner proposes to combine the wraparound closure device of Andrieu et al. with the axially compressible and radially expansible device of Kite, III et al. Specifically, the Examiner relies on Figure 3. For the reasons set forth above with respect to Claims 3-7, this combination is improper. Further, the Examiner again provides no explanation how or why one of ordinary skill would be motivated to modify Andrieu et al., and there is no teaching, suggestion, or motivation in Andrieu et al. for such a modification.

3. Claims 13 and 39 are not unpatentable, as there is no suggestion or possible way to modify Andrieu et al. with Holt et al. (and Holland et al.) to incorporate a hood.

The Examiner next proposes to take the combination of Andrieu et al. and the tubular member of Holt et al. to obtain a protective cover with a hood fastened to at least one end. This just cannot be done. The Examiner is again piecing together references without any explanation or rationale for such a combination. Andrieu et al. is directed to a closure device for the bundling of elongated articles so that they are not damaged by moving machinery parts or the like. That is, the Andrieu et al. device is intended for the installation and protection of bundled hoses and cables having ends permanently connected to the mechanical components of an automobile or other machine. There would simply be no need to protect the ends of such cables and hoses since they are presumably not disconnected. To even have such a hood fastened to at least one end would likely seriously interfere with the operation of a vehicle or other machine.

4. Claims 15-20 are not suggested by Ratigan, which is not helped by Holland et al.

The Examiner has failed to explain why one skilled in the art would be motivated to modify Ratigan with the expensive fabric of Holland. Again, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art suggests the desirability of the combination. Here, just the opposite is the case. Again, there is not a scintilla of motivation or suggestion that would prompt one of ordinary skill in the art to combine Holland with Ratigan. Ratigan, as was the case with Andrieu et al., discloses only a protective cover of conventional synthetic

fiber and fails to recognize that there is a problem. Obviously then, there is no solution to the problem. Again, when the incentive to combine references is not immediately apparent, the Examiner has the burden and duty to explain why the combination is proper. The Examiner has not done so; rather the Examiner has once more pieced together Ratigan and Holland et al. based on Applicant's specification.

5. Claims 23-25 are not suggested by Ratigan in view of (Holland et al. and) Kite, III et al.

To modify Ratigan with the device of Kite, III et al. would surely defeat the objectives of Ratigan. Ratigan aims to create a device that can be fed through blocks or pulleys (Column 1, Lines 42-48). A plurality of bands would defeat this objective. The Examiner provides no explanation how or why one of ordinary skill would be motivated to modify Ratigan, and there is no teaching, suggestion, or motivation in Ratigan for such a modification.

6. Claim 26 is not unpatentable, as there is no suggestion or possible way to modify Ratigan with (Holland et al. and) Holt et al. to incorporate a hood.

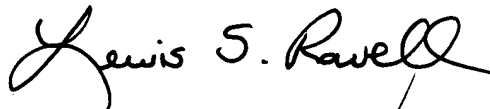
The Examiner next proposes to take the combination of Ratigan and the tubular member of Holt et al. to obtain a protective cover with a hood fastened to at least one end. This just cannot be done. The Examiner is again piecing together references without any explanation or rationale for such a combination. Ratigan is directed to an abrasion protection device that can be slid into position over a rope at the chafe point of the rope. That is, the Ratigan device is intended for installation over a rope without having to detach the rope from its securing position (Column 1, Lines 11-15). There would simply be no need to protect the ends of the rope since they are not disconnected from the mooring point.

Conclusion

Applicant has made substantial amendments to the claims. Applicant has also pointed out several problems with the Examiner's proposed modifications or combinations of references. For these reasons, the applicant believes this case is now in condition for an immediate

allowance with Claims 1-40, and such action is respectfully requested. If any issue remains unsolved, Applicant's counsel would welcome the opportunity for a telephone interview to expedite allowance.

Respectfully submitted,

A handwritten signature in black ink that reads "Lewis S. Rowell". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

THE SPECIFICATION:

Please replace the paragraph on Page 1, beginning on Line 4 and ending on Line 5 with the following:

This application is a continuation-in-part of Application Serial No. 09/860,423 filed May 18, 2001, now pending, the content of which is incorporated herein by reference in its entirety.

IN THE CLAIMS:

Please amend the claims as follows:

1-13
14-26
dp

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1. (Amended) A protective cover for lengths of material used in environments in which said lengths of material are subjected to abrasion, chemicals, [and/]or weather extremes, said protective cover comprising a sleeve surrounding said length of material, said sleeve having open ends and formed of a fabric made substantially of high performance [strength] yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier so that the protective cover is abrasion-resistant, cut-resistant, and tear-resistant.

5. (Amended) The protective cover of Claim 1 wherein said high performance yarns are [is] formed from polymers selected from the group consisting of long chain polyethylenes, high strength aramids, liquid crystal polymers, and combinations thereof.

6. (Amended) The protective cover of Claim 5 wherein said high performance [strength] yarns are about 400 to 1000 denier.

14. (Amended) A protective cover for lengths of material [such as ropes and the like] used in environments in which said lengths of material are subjected to abrasion, chemicals, [and/]or weather extremes, said protective cover comprising a sleeve surrounding said length of material, said sleeve having open ends and formed of a fabric made substantially of high performance [strength] yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier so that the protective cover is abrasion-resistant, cut-resistant, and tear-resistant.

18. (Amended) The protective cover of Claim 14 wherein said high performance yarns are [is] formed from polymers selected from the group consisting of long chain polyethylenes, high strength aramids, liquid crystal polymers, and combinations thereof.

19. (Amended) The protective cover of Claim 18 wherein said high performance [strength] yarns are about 400 to 1000 denier.

27. (Amended) An abrasion-resistant, cut-resistant, and tear-resistant protective cover system, comprising:

- (c) a length of material [of the type] that must be periodically moved or pulled across abrasive surfaces; and
- (d) a protective sleeve having open ends and surrounding said length of material and formed from a fabric made substantially of high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier, [having open ends,] wherein said protective sleeve is abrasion-resistant, cut-resistant, and tear-resistant [protects said length of material from abrasion and wear thereof].

31. (Amended) The protective cover of Claim 27 wherein said high performance yarns are [is] formed from polymers selected from the group consisting of long chain polyethylenes, high strength aramids, liquid crystal polymers, and combinations thereof.

32. (Amended) The protective cover of Claim 31 wherein said high performance [strength] yarns are about 400 to 1000 denier.

40. (Amended) An abrasion-resistant rope [of the type] that must be periodically moved or pulled across abrasive services comprising an outer protective layer formed substantially from high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier so that the protective layer is abrasion-resistant, cut-resistant, and tear-resistant.